

# A Complete Bibliography of the *ACM Transactions on Computing Education (TOCE)*

Nelson H. F. Beebe  
University of Utah  
Department of Mathematics, 110 LCB  
155 S 1400 E RM 233  
Salt Lake City, UT 84112-0090  
USA

Tel: +1 801 581 5254  
FAX: +1 801 581 4148

E-mail: [beebe@math.utah.edu](mailto:beebe@math.utah.edu), [beebe@acm.org](mailto:beebe@acm.org),  
[beebe@computer.org](mailto:beebe@computer.org) (Internet)  
WWW URL: <http://www.math.utah.edu/~beebe/>

08 June 2016  
Version 1.32

## Title word cross-reference

**1** [Zin15]. **12**

[GES14, HAGM14, HAG15b, TM14].

**Abstraction** [SSD09]. **Academies**

[DLM11]. **Accessibility** [PLB<sup>+</sup>12].

**Accomplishment** [ZD15]. **according**

[MM12]. **Achievement** [AANK14, Zin15].

**ACM** [TM09]. **Active** [VI13, IT13].

**Adding** [BLNC09]. **affordable** [AGEL13].

**African** [EKSW11]. **Agile** [MSH10].

**Algorithm**

[Kar09, RVI09, SCA<sup>+</sup>10, UFVI09].

**Algorithmic** [Kie09]. **Algorithms** [VI13].

**Alice** [Coo10, UCK<sup>+</sup>10]. **Alleviate** [KV15].

**Alliance** [DBBR11, GHT<sup>+</sup>11]. **Alternative**

[BC12]. **alternatives** [Gri13]. **Analysis**

[AANK14, PDF15, RVAN15, ZJWF11].

**Analyze** [VFFT16]. **Animation**

[Kar09, UFVI09]. **Answers** [HAG15b].

**Application** [RMNC10].

**Application-Oriented** [RMNC10].

**Approach**

[AANK14, BC12, KLS<sup>+</sup>14, CHM13].

**Approaches** [CHU<sup>+</sup>09, KLM15, KA16].

**Architecture** [Mit14, SPR12, Wan11].

**architectures** [ZPB13]. **Areas** [KS14]. **Art**

[Ip12]. **Arts**

[BBD<sup>+</sup>10, BB10, BCD10, WK10]. **Asking**

[Ten14]. **Assembly** [SPR12]. **assessed**

[Lar16]. **Assessment** [DHH<sup>+</sup>15, Ric09].

**assignments** [RRKP13]. **Associations**

[PCH09]. **Attitudes** [PLB<sup>+</sup>12, TABA12].

**AuDeNTES** [MM12]. **Automatic** [MM12].

**Back** [RS14]. **Backward** [TM15]. **Based** [AAGH14, BL14, MFR13, O'G12, RT15, Ric09, RV09, RMNC10]. **be** [LGP13]. **Behind** [PLB<sup>+</sup>12]. **Benchmarks** [HB15]. **Berkeley** [CHH<sup>+</sup>11]. **Between** [LRVW14]. **Binary** [PCH09]. **BlueJ** [BS10]. **Boolean** [HLKZ12]. **Bridging** [LRVW14]. **Bring** [RWK<sup>+</sup>15]. **Bringing** [HB15]. **Broadening** [CHH<sup>+</sup>11, DBBR11, LV11a, LV11b].

**Can** [LGP13]. **Capturing** [Lar16]. **Career** [LRJ14]. **Careers** [RCS11]. **Case** [BBD<sup>+</sup>10, BAR14, BWE11, GM11, KMB<sup>+</sup>15, SSD09]. **centered** [RC13]. **Challenges** [BBG12, GES14]. **Children** [WDC15]. **Choice** [LRJ14]. **Class** [PCH09, YR15]. **Classes** [Xin15]. **Classroom** [BWE11, HB15, Gri13]. **cloud** [ZPB13]. **clouds** [RRKP13]. **code** [HAA13]. **Cognitive** [LRJ14, RJJ10]. **Collaborative** [CDK<sup>+</sup>14, MBSBA09, VFFT16]. **College** [EKSW11, LR11]. **Colleges** [She13]. **Communication** [BBG12]. **Communications** [MAK12]. **Competence** [TSK12]. **Compiler** [SSD09]. **Compulsory** [Hub12]. **Computational** [KLS<sup>+</sup>14, TM11a, WDC15, WSP<sup>+</sup>11, YMZ<sup>+</sup>14, YR15]. **Computer** [Arm11, BBD<sup>+</sup>10, BB10, BDDGT14, BAR14, BBG12, BWE11, BSCH14, BCD10, GES14, GM14, GM11, HB15, Hub12, HAGM14, HAG15b, KS14, KFME11, KMB<sup>+</sup>15, RVAN15, RJJ10, RWK<sup>+</sup>15, RV09, RCS11, She13, SPR12, VFFT16, WK10, YVQ<sup>+</sup>10, ZJWF11, AGEL13, Gri13, LGP13, Zin15]. **Computes** [GEME14]. **Computing** [Bar09, BH16, Bur11, CAL15, DBBR11, DLM11, EKSW11, ET12, GHT<sup>+</sup>11, GGH<sup>+</sup>10, KLS<sup>+</sup>14, LV11a, LV11b, LR11, MFR13, MBE<sup>+</sup>16, MS11, O'G12, PM09, TM09, TM10, TM11a, TM11b, TM14, YR15, AGEL13, HAA13, NCLN13]. **Concept** [GGH<sup>+</sup>10]. **Conceptions** [Xin15]. **Concepts** [AWW15, KLS<sup>+</sup>14, KA16, MS11].

**concurrency** [CHM13]. **concurrent** [BAGM13]. **Consortium** [BCD10]. **construction** [NCLN13]. **Constructionist** [MSH10]. **Context** [GEME14, ORS16]. **Cooperative** [BC13]. **core** [ZPB13]. **Correctness** [DHH<sup>+</sup>15]. **Countries** [GES14]. **Course** [NGK11, PDF15, Rit09, She13, SH10, Wan11, d'A10]. **Courses** [CDK<sup>+</sup>14, Ip12, Mit14, Ric09, HAA13, LGP13]. **Crafts** [KLS<sup>+</sup>14]. **Crafts-Oriented** [KLS<sup>+</sup>14]. **Creating** [Rit09]. **Creation** [RWK<sup>+</sup>15]. **Creativity** [ALP12]. **Creativity-Supporting** [ALP12]. **Critical** [GHT<sup>+</sup>11]. **Cross** [TM14]. **Cross-National** [TM14]. **CS** [RVAN15, KV15, PLB<sup>+</sup>12, TABA12]. **CS1** [BC13, ORS16]. **CSLE** [ALP12]. **CSS** [PDF15]. **CS Tutor** [BL14]. **Current** [CAL15]. **Curricula** [BCD10]. **Curriculum** [McG12a, AGEL13]. **Cybersecurity** [LRVW14].

**Darmstadt** [RVAN15]. **Data** [BL14, CHU<sup>+</sup>09, YR15]. **Data-Driven** [YR15]. **Debugger** [BS10]. **Decade** [CHH<sup>+</sup>11]. **Degree** [AANK14, McG12a]. **Describing** [HLKZ12]. **Design** [BC13, BC12, Bur11, Co010, EKSW11, Ip12, PCH09, RWK<sup>+</sup>15, TSK12, Xin15]. **Designing** [NCLN13, Ric09]. **Detection** [MM12]. **Developing** [TSK12]. **Development** [AWW15, Ip12, Lar16, MC15, PDF15, Rit09, ZD15]. **Devices** [TSK12]. **Diagnosing** [Kie09]. **did** [IT13]. **Didactical** [BDDGT14]. **Different** [KLM15, KA16]. **Difficulties** [HLKZ12, LBK11]. **Digital** [BC12]. **Directed** [MBE<sup>+</sup>16]. **direction** [IT13]. **Discipline** [MFR13, TM10]. **Discipline-Based** [MFR13]. **Discussion** [UCK<sup>+</sup>10]. **Distributed** [ORKH09]. **Diversity** [RBSS11]. **division** [LGP13]. **Do** [BBG12]. **Doesn't** [MS11]. **Domains** [LRVW14]. **down** [ZPB13]. **down-to-earth** [ZPB13]. **Driven** [YR15, CHM13]. **During**

[RJJ10]. **Dynamic** [CHU<sup>+</sup>09].

**early** [HAA13]. **earth** [ZPB13]. **Editorial** [RVI09, TM11a, TM11b, TM14]. **Editors** [BB10]. **Education** [BDDGT14, BLM<sup>+</sup>14, BH16, Bur11, CAL15, EKSW11, ET12, GES14, GEME14, Hub12, HAGM14, HAG15b, Kie09, KMB<sup>+</sup>15, KV15, LV11a, LV11b, LRVW14, MFR13, O'G12, PM09, RVAN15, RWK<sup>+</sup>15, RVI09, SKM13, TM10, TM11a, TM11b, TM14, YMZ<sup>+</sup>14, NCLN13, Sor13, TM09]. **education-friendly** [NCLN13]. **Educational** [KS14, ZPB13]. **Effective** [ORS16, RJJ10, LGP13]. **Effectively** [ORKH09]. **Effects** [MS11]. **Efficacy** [RCS11]. **Electronic** [KLS<sup>+</sup>14]. **Elementary** [YMZ<sup>+</sup>14]. **emphasizing** [IT13]. **Empirical** [SS13]. **Endeavors** [CAL15]. **Engagement** [MBSBA09]. **Engaging** [KFME11]. **Engineering** [CDK<sup>+</sup>14, KFME11, MFR13, MPTV16, Mit14]. **Enjoyment** [ZD15]. **Enthusiasm** [Lar16]. **Entry** [TM11b]. **Environment** [ALP12, CDK<sup>+</sup>14, Köl10, MRR<sup>+</sup>10]. **Environments** [FU10b, Kie09, VFFT16]. **Equation** [LRJ14]. **Equity** [KFME11]. **Errors** [PDF15]. **Essential** [ZD15]. **Evaluation** [KLM15, Rit09, Wan11, BC13]. **Evaluations** [UFVI09]. **Examination** [Ip12, WK10]. **Examining** [Zin15]. **Examples** [BNP11]. **Execution** [BS10]. **Experienced** [ET12]. **Experiences** [Bar09, KFME11]. **Experimental** [VI13]. **Exploration** [MPTV16]. **Exploring** [ET12, GM11]. **Expository** [WSP<sup>+</sup>11]. **Extending** [MBSBA09]. **Extensive** [Wan11].

**Facilitate** [Mit14]. **Factors** [LRJ14, ZD15]. **Faculty** [Bar09]. **Feedback** [ORS16]. **Fiction** [GM14]. **Field** [SCA<sup>+</sup>10]. **Finnish** [KV15]. **First** [CK09, NGK11]. **Fit** [BBG12]. **Fitting** [Ip12]. **Focus** [Ric09]. **Formal** [GEME14]. **Formation** [Ric09]. **Forward** [RS14, TM15]. **Foundation** [CHH<sup>+</sup>11]. **Fractal** [EKSW11]. **Frances** [SPR12]. **French** [BDDGT14]. **friendly** [NCLN13].

**Game** [McG12a, RWK<sup>+</sup>15, Rit09, Wan11]. **Games** [Ip12, WDC15]. **Gap** [LRVW14]. **Gender** [KFME11, RCS11]. **Generation** [BLNC09, CHU<sup>+</sup>09]. **Generic** [SKM13]. **Georgia** [GEME14]. **Germany** [KMB<sup>+</sup>15]. **Goals** [MS11, Zin15]. **Grades** [Zin15]. **Graphics** [She13]. **GRASP** [TSK12]. **Greedy** [VI13]. **Greenfoot** [Köl10, UCK<sup>+</sup>10]. **Group** [Ric09]. **Groups** [RBSS11]. **Guest** [BB10]. **Guided** [NGK11].

**Hardware** [BC12, LRVW14]. **help** [HS13]. **Helping** [RT15]. **High** [DLM11, KLS<sup>+</sup>14, MSH10, ZJWF11, AGEL13]. **high-performance** [AGEL13]. **Hispanic** [GHT<sup>+</sup>11]. **Hispanic-Serving** [GHT<sup>+</sup>11]. **Hispanics** [GHT<sup>+</sup>11]. **Historical** [BDDGT14]. **History** [BCD10]. **Holistic** [NGK11]. **HTML** [PDF15]. **human** [RC13]. **human-centered** [RC13]. **Hypertext** [Kar09]. **Hypertextbook** [RV09].

**i\*CATch** [NCLN13]. **ICT** [TSK12]. **Identification** [RJJ10]. **Identify** [LRJ14]. **Identifying** [AANK14]. **Impact** [KA16, PLB<sup>+</sup>12]. **Impairments** [LR11]. **Implement** [HAG15b]. **implementation** [BC13]. **Implementing** [AGEL13]. **Implications** [Bur11]. **Including** [PLB<sup>+</sup>12]. **Indian** [RVAN15]. **Industry** [Ip12, MAK12]. **Ineffective** [RJJ10]. **Influences** [McG12b]. **Informal** [GEME14]. **Informatics** [BLM<sup>+</sup>14, KS14]. **Information** [CHH<sup>+</sup>11, MAK12, RCS11]. **Inheritance** [LBK11]. **Initial** [FU10b]. **INSPIRED** [DLM11]. **Institutions** [GHT<sup>+</sup>11]. **instruction** [LGP13]. **instructional** [BC13]. **Instructor** [AWW15]. **Insufficient** [KV15]. **Integrating** [CDK<sup>+</sup>14, HAA13].

**Integration** [BSY<sup>+</sup>10]. **Intention** [ZD15]. **Intentions** [TABA12]. **Interaction** [CHU<sup>+</sup>09]. **Interactive** [BSY<sup>+</sup>10, TSK12]. **Interest** [Zin15]. **Intervention** [GEME14]. **Introducing** [KLS<sup>+</sup>14, MFR13, TM09]. **Introduction** [BB10, BAR14, BAGM13, GM14, Gri13, Hub12, LV11a, MC15]. **Introductory** [BBG12, BNP11, GGH<sup>+</sup>10, KLM15, KA16, SKM13, Sor13]. **Inventories** [GGH<sup>+</sup>10]. **Investigating** [ZD15]. **Investigation** [SS13, Xin15]. **Israel** [GES14]. **Issue** [FU10b, LV11a, LV11b, MC15, BAGM13, Gri13]. **Issues** [CAL15]. **Italian** [BLM<sup>+</sup>14].

**Java** [BNP11].

**Keeping** [Hun16]. **Kingdom** [McG12a]. **kit** [NCLN13]. **Korea** [CAL15].

**Language** [MRR<sup>+</sup>10, SPR12, SS13]. **Languages** [KA16]. **Latino** [ZJWF11]. **Learn** [MBE<sup>+</sup>16, RT15, ZD15, HS13]. **Learner** [Kie09]. **Learning** [AANK14, ALP12, BBG12, BS10, BSY<sup>+</sup>10, CDK<sup>+</sup>14, FU10b, Kie09, KA16, LBK11, MBE<sup>+</sup>16, McG12b, MAK12, MS11, MBSBA09, O'G12, PCH09, RT15, VI13, VFFT16, WDC15, BC13]. **lecture** [Gri13]. **Left** [PLB<sup>+</sup>12]. **Lens** [Arm11]. **Levels** [Lar16]. **Liberal** [BBD<sup>+</sup>10, BB10, BCD10, WK10]. **Life** [BBG12]. **Limited** [Rit09]. **Logic** [HLKZ12]. **Look** [RS14, TM15]. **Looking** [Arm11, TM15].

**Machine** [BLNC09]. **Machines** [FU10a, Sor13]. **Major** [LRJ14, ZJWF11]. **Majority** [RBSS11]. **Make** [MS11]. **Many** [HAG15b, ZPB13]. **many-core** [ZPB13]. **MapReduce** [RRKP13]. **Mathematical** [DHH<sup>+</sup>15]. **Matters** [TM10]. **measurement** [RRKP13]. **Measuring** [Lar16, WDC15]. **Medium** [She13].

**Medium-sized** [She13]. **Memoriam** [HAG15a]. **Mentoring** [MSH10]. **Merging** [Kar09]. **Method** [VI13, VFFT16]. **Methodology** [MSH10]. **methods** [BC13]. **Middle** [TABA12, WSP<sup>+</sup>11]. **Middle-School** [TABA12]. **Mittermeir** [HAG15a]. **MLeXAI** [RMNC10]. **Model** [BCD10, RVAN15, RMNC10, CHM13]. **model-driven** [CHM13]. **Modeling** [LRJ14, Mit14]. **MOOC** [KV15]. **Motivation** [MBE<sup>+</sup>16, McG12b, NGK11]. **Move** [RS14]. **Multiple** [CHU<sup>+</sup>09]. **multipurpose** [NCLN13].

**National** [TM14]. **Needs** [Ip12]. **Nexus** [MAK12]. **No** [PLB<sup>+</sup>12]. **nontraditional** [RC13]. **North** [KMB<sup>+</sup>15]. **North-Rhine** [KMB<sup>+</sup>15]. **Notional** [Sor13]. **Novice** [Xin15]. **Novices** [RT15]. **NZ** [BAR14].

**Object** [AANK14, BS10, Xin15]. **Object-Oriented** [AANK14, BS10, Xin15]. **Objectives** [PM09]. **Objects** [Xin15]. **Online** [BBG12, VFFT16]. **operating** [ZPB13]. **Opportunities** [CHH<sup>+</sup>11]. **Optimization** [SSD09]. **Orientation** [RCS11]. **Oriented** [AAGH14, AANK14, BS10, KLS<sup>+</sup>14, RMNC10, Xin15, d'A10, AGEL13]. **Own** [MBE<sup>+</sup>16].

**Pair** [BWE11]. **parallel** [BAGM13]. **Part** [LV11a, LV11b]. **Partially** [ORKH09]. **Participation** [CHH<sup>+</sup>11, DBBR11, LV11a, LV11b, MPTV16]. **Pass** [SSD09]. **PatternCoder** [PCH09]. **Patterns** [PCH09]. **Pedagogical** [TSK12, HAA13]. **Pedagogy** [Zin15]. **peer** [LGP13]. **Perceived** [ZD15]. **Perception** [AAGH14]. **Perceptions** [Bar09]. **Perfect** [MS11]. **performance** [AGEL13]. **Personal** [McG12b]. **Personalization** [BSY<sup>+</sup>10]. **Perspective** [AWW15, TM14]. **Perspectives**

[BDDGT14, HAGM14, KLS<sup>+</sup>14]. **Philosophical** [WK10]. **physical** [NCLN13]. **plagiarism** [MM12]. **Planning** [McG12a]. **POGIL** [HS13]. **Points** [GHT<sup>+</sup>11, TM11b]. **Policy** [GEME14]. **Polymorphism** [LBK11]. **Positive** [Hum16]. **Practical** [O’G12]. **Practice** [MS11]. **Practices** [KLS<sup>+</sup>14, KFME11]. **Pre** [EKSW11, LR11]. **Pre-College** [EKSW11, LR11]. **Preface** [FU10b]. **Preparation** [Arm11]. **Presuppositions** [Ten14]. **Primary** [HAGM14]. **Principles** [DHH<sup>+</sup>15, ORS16]. **Problem** [Kie09, O’G12]. **Problem-Based** [O’G12]. **Problem-Solving** [Kie09]. **Problems** [AANK14, Kie09]. **Procedural** [SSD09]. **Process** [CK09, McG12a]. **Processes** [RJJ10]. **Processors** [SH10]. **Professional** [ET12]. **Program** [McG12b, RT15, RV109, SKM13, UFVI09, HS13]. **Programming** [AAGH14, AANK14, AMSBA15, BWE11, BSY<sup>+</sup>10, CK09, Köl10, KLM15, KA16, MRR<sup>+</sup>10, NGK11, PCH09, RJJ10, RS14, SKM13, SS13, WDC15, Xin15, BAGM13, IT13, Sor13]. **Programs** [BBD<sup>+</sup>10, BS10, McG12a, RBSS11]. **Project** [Ric09, RMNC10, Wan11]. **Project-Based** [Ric09, RMNC10]. **Projects** [BH16, MSH10, Mit14, PLB<sup>+</sup>12]. **Promising** [KFME11]. **Promote** [LR11]. **Promoting** [KFME11]. **Prototype** [RV09]. **Purposeful** [KV15].

**Qualitative** [YR15]. **Quality** [BNP11]. **Quantitative** [KLM15]. **Questions** [HAG15b, Ten14].

**react** [IT13]. **Real** [AMSBA15]. **Reasoning** [DHH<sup>+</sup>15]. **Reconfigurable** [SH10]. **Redesign** [TSK12]. **rEference** [MM12]. **Reflections** [ET12]. **Reform** [GM11]. **Regarding** [TABA12]. **Rehabilitation** [NGK11]. **Relevant** [KS14]. **required** [IT13]. **Research** [Bar09, GM14, HB15, KFME11, MAK12, PM09, TM11b, Ten14]. **Resources** [Rit09]. **Restart** [BSCH14]. **Resurgence** [BSCH14]. **Review** [SKM13]. **reviews** [HAA13]. **Rhine** [KMB<sup>+</sup>15]. **Rigorous** [HAG15b]. **Robotics** [LR11]. **Robots** [McG12b]. **Robust** [CHU<sup>+</sup>09]. **Roland** [HAG15a]. **Role** [RBSS11, IT13]. **Russia** [KS14].

**Scaffolding** [RT15]. **Scalable** [RWK<sup>+</sup>15]. **Scenario** [AAGH14]. **Scenario-Based** [AAGH14]. **Scholarship** [TM10]. **School** [DLM11, GM11, KLS<sup>+</sup>14, KS14, MSH10, RS14, TABA12, WSP<sup>+</sup>11, ZJWF11]. **Schools** [BDDGT14, BAR14, BLM<sup>+</sup>14, BSCH14, Hub12, HAGM14, HAG15b, KV15, RVAN15, RWK<sup>+</sup>15, TM14]. **Science** [Arm11, BBD<sup>+</sup>10, BB10, BDDGT14, BAR14, BBG12, BWE11, BSCH14, BCD10, GES14, GM14, GM11, Hub12, HAGM14, HAG15b, KS14, KFME11, KMB<sup>+</sup>15, RVAN15, RWK<sup>+</sup>15, RV09, VFFT16, WK10, ZJWF11, Zin15, AGEL13, Gri13, LGP13]. **Sciences** [RCS11]. **Scope** [GGH<sup>+</sup>10]. **Scratch** [AMSBA15, MRR<sup>+</sup>10, UCK<sup>+</sup>10]. **Seamless** [Kar09]. **Secondary** [Arm11, BDDGT14, BLM<sup>+</sup>14, Hub12, HAGM14, Kie09, YMZ<sup>+</sup>14]. **Security** [YVQ<sup>+</sup>10, RC13]. **Select** [ZJWF11]. **Self** [Lar16, MBE<sup>+</sup>16, RCS11, IT13]. **Self-assessed** [Lar16]. **Self-Directed** [MBE<sup>+</sup>16]. **self-direction** [IT13]. **Self-Efficacy** [RCS11]. **Serving** [GHT<sup>+</sup>11]. **Setting** [GGH<sup>+</sup>10]. **Simulation** [RWK<sup>+</sup>15]. **Simulations** [EKSW11]. **Singleton** [She13]. **Situation** [RVAN15]. **sized** [She13]. **Sketch** [BL14]. **Sketch-Based** [BL14]. **Skill** [Lar16]. **Skills** [YR15]. **Small** [She13]. **Smartphones** [RT15]. **Social** [LRJ14, RCS11]. **Software** [CDK<sup>+</sup>14, DHH<sup>+</sup>15, LRVW14, MPTV16, MSH10, Mit14, MBSBA09, Wan11]. **Solution** [MM12]. **Solving** [Kie09]. **Some** [HAG15b]. **Special** [FU10b, LV11a, LV11b,

- MC15, BAGM13, Gri13]. **SQL** [BSY<sup>+</sup>10]. **STARS** [DBBR11]. **State** [GEME14, SCA<sup>+</sup>10]. **States** [GES14, McG12a]. **Story** [ZJWF11]. **Strategies** [DBBR11, Kie09]. **Strategy** [RWK<sup>+</sup>15, WDC15]. **STREAM** [CK09]. **Structural** [LRJ14]. **Structure** [CHU<sup>+</sup>09]. **Structures** [BL14]. **Student** [Bar09, HLKZ12, KA16, MPTV16, McG12b, PLB<sup>+</sup>12, TABA12, VFFT16, YR15, ZD15]. **Students** [LR11, MBE<sup>+</sup>16, ORKH09, ORS16, RJJ10, ZJWF11, HS13, IT13]. **Studies** [BBD<sup>+</sup>10]. **Studio** [RT15]. **Studio-Based** [RT15]. **Study** [BAR14, GM11, KMB<sup>+</sup>15, Rit09, YR15, Zin15]. **Subject** [Hub12, KS14]. **Subjects** [GGH<sup>+</sup>10]. **Success** [ZJWF11]. **Successes** [GES14]. **Successful** [UFVI09]. **Support** [PCH09, RCS11]. **Supported** [CDK<sup>+</sup>14]. **Supporting** [ALP12, GHT<sup>+</sup>11]. **Survey** [UFVI09]. **Syntax** [PDF15, SS13]. **Synthesis-Oriented** [d'A10]. **System** [ZPB13]. **Systemic** [RWK<sup>+</sup>15]. **Systems** [SKM13, TSK12, UFVI09].
- Tale** [GES14]. **Talking** [HAA13]. **Task** [MS11]. **Taxonomy** [MBSBA09]. **Teacher** [Arm11, YMZ<sup>+</sup>14]. **Teaching** [BC12, BLNC09, DHH<sup>+</sup>15, HB15, IT13, KLM15, KA16, MAK12, RC13, YVQ<sup>+</sup>10, AGEL13, CHM13]. **teaching-oriented** [AGEL13]. **Team** [BH16, Lar16]. **Teams** [MPTV16, ORKH09]. **Teamwork** [VFFT16]. **techniques** [RC13]. **Technology** [MAK12, CHH<sup>+</sup>11]. **teNtative** [MM12]. **Test** [BLNC09]. **Testing** [CDK<sup>+</sup>14]. **Textbooks** [BNP11]. **Textiles** [KLS<sup>+</sup>14]. **Their** [MBE<sup>+</sup>16]. **them** [IT13]. **Theoretical** [Ten14]. **Theory** [LRJ14]. **Thinking** [FU10a, WSP<sup>+</sup>11, YMZ<sup>+</sup>14, YR15]. **Three** [Mit14]. **Three-Tier** [Mit14]. **Threshold** [AWW15]. **Tier** [Mit14]. **TOCE** [Hun16, TM15]. **Tool** [BL14, PCH09, SPR12, TSK12]. **Tools** [BSY<sup>+</sup>10, TM11a, YVQ<sup>+</sup>10]. **Training** [ORKH09]. **Trajectory** [Hun16]. **Transactions** [TM09]. **Transition** [GHT<sup>+</sup>11, TM15]. **Translating** [ORS16]. **Two** [GES14].
- UK** [BSCH14, Ip12]. **UML** [Mit14]. **Uncovering** [AWW15]. **Undergraduate** [Bar09, KFME11, MFR13, McG12a, She13]. **Undergraduates** [RCS11]. **Understanding** [Lar16, SPR12]. **United** [GES14, McG12a]. **Universal** [Bur11]. **Unplugged** [TABA12]. **up-in-the-cloud** [ZPB13]. **upper** [LGP13]. **upper-division** [LGP13]. **Usability** [AAGH14]. **Usability-Oriented** [AAGH14]. **Use** [LR11]. **User** [PLB<sup>+</sup>12]. **Using** [HS13, Kie09, Mit14, RRKP13, Wan11, RVAN15, RC13]. **Utilizing** [LRJ14].
- Values** [PM09]. **VHDL** [d'A10]. **Viable** [DBBR11]. **Views** [TABA12]. **Vision** [HB15]. **Visions** [HAGM14]. **Visual** [BS10, LR11]. **Visualization** [MBSBA09, RVI09, RV09, SSD09, SCA<sup>+</sup>10, SKM13, UFVI09, YVQ<sup>+</sup>10]. **Visualization-Based** [RV09]. **Visualizations** [CHU<sup>+</sup>09]. **Visualizing** [BL14].
- wearable [NCLN13]. **Web** [AWW15, MC15, PDF15, ZD15]. **Westphalia** [KMB<sup>+</sup>15]. **Women** [KFME11]. **Work** [ORKH09]. **Workload** [BBG12]. **Writing** [WSP<sup>+</sup>11].

## References

Alexandron:2014:SBP

- [AAGH14] Giora Alexandron, Michal Armoni, Michal Gordon, and David Harel. Scenario-based program-

- ming, usability-oriented perception. *ACM Transactions on Computing Education*, 14(3): 21:1–21:??, November 2014. CODEN ????? ISSN 1946-6226.
- [Allinjawi:2014:ADA]
- [AANK14] Arwa A. Allinjawi, Hana A. Al-Nuaim, and Paul Krause. An achievement degree analysis approach to identifying learning problems in object-oriented programming. *ACM Transactions on Computing Education*, 14(3): 20:1–20:??, November 2014. CODEN ????? ISSN 1946-6226.
- [Abuzaghle:2013:IAH]
- [AGEL13] Omar Abuzaghle, Kathleen Goldschmidt, Yasser Elleithy, and Jeongkyu Lee. Implementing an affordable high-performance computing for teaching-oriented computer science curriculum. *ACM Transactions on Computing Education*, 13(1):3:1–3:??, January 2013. CODEN ????? ISSN 1946-6226.
- [Apiola:2012:CSL]
- [ALP12] Mikko Apiola, Matti Lattu, and Tomi A. Pasanen. Creativity-supporting learning environment—CSLE. *ACM Transactions on Computing Education*, 12(3): 11:1–11:??, July 2012. CODEN ????? ISSN 1946-6226.
- [Armoni:2015:SRP]
- [AMSBA15] Michal Armoni, Orni Meerbaum-Salant, and Mordechai Ben-Ari. From scratch to “real” programming. *ACM Transactions on Computing Education*, 14(4): 25:1–25:??, February 2015. CODEN ????? ISSN 1946-6226.
- [Armoni:2011:LST]
- [Arm11] Michal Armoni. Looking at secondary teacher preparation through the lens of computer science. *ACM Transactions on Computing Education*, 11(4): 23:1–23:??, November 2011. CODEN ????? ISSN 1946-6226.
- [Alston:2015:UTC]
- [AWW15] Peter Alston, David Walsh, and Gary Westhead. Uncovering “threshold concepts” in Web development: an instructor perspective. *ACM Transactions on Computing Education*, 15(1): 2:1–2:??, March 2015. CODEN ????? ISSN 1946-6226.
- [Ben-Ari:2013:ISI]
- [BAGM13] Mordechai Ben-Ari, Dan Garcia, and Tom Murphy. Introduction to the special issue on concurrent and parallel programming. *ACM Transactions on Computing Education*, 13(1):1:1–1:??, January 2013. CODEN ????? ISSN 1946-6226.
- [Barker:2009:SFP]
- [Bar09] L. Barker. Student and faculty perceptions of undergraduate research experiences in computing. *ACM Transactions on Computing Education*, 9(1):5:1–5:??, March 2009. CODEN ????? ISSN 1946-6226.
- [Bell:2014:CSI]
- [BAR14] Tim Bell, Peter Andreae, and Anthony Robins. A case study

- of the introduction of computer science in NZ schools. *ACM Transactions on Computing Education*, 14(2):10:1–10:??, June 2014. CODEN ????? ISSN 1946-6226.
- [BB10] Doug Baldwin and Alyce Brady. Guest Editors’ introduction: Computer science in the liberal arts. *ACM Transactions on Computing Education*, 10(1):1:1–1:??, March 2010. CODEN ????? ISSN 1946-6226.
- [BBD<sup>+</sup>10] D. Baldwin, A. Brady, A. Danyluk, J. Adams, and A. Lawrence. Case studies of liberal arts computer science programs. *ACM Transactions on Computing Education*, 10(1):4:1–4:??, March 2010. CODEN ????? ISSN 1946-6226.
- [BBG12] Klara Benda, Amy Bruckman, and Mark Guzdial. When life and learning do not fit: Challenges of workload and communication in introductory computer science online. *ACM Transactions on Computing Education*, 12(4):15:1–15:??, November 2012. CODEN ????? ISSN 1946-6226.
- [BC12] Khaled Benkrid and Thomas Clayton. Digital hardware design teaching: an alternative approach. *ACM Transactions on Computing Education*, 12(4):13:1–13:??, November 2012. CODEN ????? ISSN 1946-6226.
- [BC13] Leland Beck and Alexander Chizhik. Cooperative learning instructional methods for CS1: Design, implementation, and evaluation. *ACM Transactions on Computing Education*, 13(3):10:1–10:??, August 2013. CODEN ????? ISSN 1946-6226.
- [BCD10] Kim B. Bruce, Robert D. Cupper, and Robert L. Scot Drysdale. A history of the liberal arts computer science consortium and its model curricula. *ACM Transactions on Computing Education*, 10(1):3:1–3:??, March 2010. CODEN ????? ISSN 1946-6226.
- [BH16] Jürgen Börstler and Thomas B. Hilburn. Team projects in computing education. *ACM Transactions on Computing Education*, 16(2):4:1–4:??, March 2016. CODEN ????? ISSN 1946-6226.
- [Baldwin:2010:GEI] Baldwin:2010:GEI
- [Baldwin:2010:CSL] Baldwin:2010:CSL
- [Beck:2013:CLI] Beck:2013:CLI
- [Bruce:2010:HLA] Bruce:2010:HLA
- [Benda:2012:WLL] Benda:2012:WLL
- [Baron:2014:CSE] Baron:2014:CSE
- [Borstler:2016:TPC] Borstler:2016:TPC

- [BL14] Sarah Buchanan and Joseph J. Laviola, Jr. CSTutor: a sketch-based tool for visualizing data structures. *ACM Transactions on Computing Education*, 14(1):3:1–3:??, March 2014. CODEN ???? ISSN 1946-6226.
- [BLM<sup>+</sup>14] Carlo Bellettini, Violetta Lonati, Dario Malchiodi, Mattia Monga, Anna Morpurgo, Mauro Torelli, and Luisa Zecca. Informatics education in Italian secondary schools. *ACM Transactions on Computing Education*, 14(2):15:1–15:??, June 2014. CODEN ???? ISSN 1946-6226.
- [BLNC09] Michael Bruce-Lockhart, Theodore Norvell, and Pierluigi Crescenzi. Adding test generation to the teaching machine. *ACM Transactions on Computing Education*, 9(2):12:1–12:??, June 2009. CODEN ???? ISSN 1946-6226.
- [BNP11] Jürgen Börstler, Marie Nordström, and James H. Pater-son. On the quality of examples in introductory Java textbooks. *ACM Transactions on Computing Education*, 11(1):3:1–3:??, February 2011. CODEN ???? ISSN 1946-6226.
- [BS10] Jens Bennedsen and Carsten Schulte. BlueJ visual debugger for learning the execution of object-oriented programs? *ACM Transactions on Computing Education*, 10(2):8:1–8:??, June 2010. CODEN ???? ISSN 1946-6226.
- [BSCH14] Neil C. C. Brown, Sue Sentance, Tom Crick, and Simon Humphreys. Restart: The resurgence of computer science in UK schools. *ACM Transactions on Computing Education*, 14(2):9:1–9:??, June 2014. CODEN ???? ISSN 1946-6226.
- [BSY<sup>+</sup>10] Peter Brusilovsky, Sergey Sosnovsky, Michael V. Yudelson, Danielle H. Lee, Vladimir Zadorozhny, and Xin Zhou. Learning SQL programming with interactive tools: From integration to personalization. *ACM Transactions on Computing Education*, 9(4):19:1–19:??, January 2010. CODEN ???? ISSN 1946-6226.
- [Bur11] Sheryl Burgstahler. Universal design: Implications for computing education. *ACM Transactions on Computing Education*, 11(3):19:1–19:??, October 2011. CODEN ???? ISSN 1946-6226.
- [BWE11] Grant Braught, Tim Wahls, and L. Marlin Eby. The case for pair programming in the computer science classroom. *ACM Transactions on Computing Education*, 11(1):2:1–2:??, Febru-

**Buchanan:2014:CSB****Bellettini:2014:IEI****Bruce-Lockhart:2009:ATG****Borstler:2011:QEI****Bennedsen:2010:BVD****Brown:2014:RRC****Brusilovsky:2010:LSP****Burgstahler:2011:UDI****Braught:2011:CPP**

- ary 2011. CODEN ???? ISSN 1946-6226.
- [CAL15] Jeongwon Choi, Sangjin An, and Youngjun Lee. Computing education in Korea — current issues and endeavors. *ACM Transactions on Computing Education*, 15(2):8:1–8:??, May 2015. CODEN ???? ISSN 1946-6226.
- [CDK<sup>+</sup>14] Peter J. Clarke, Debra Davis, Tariq M. King, Jairo Pava, and Edward L. Jones. Integrating testing into software engineering courses supported by a collaborative learning environment. *ACM Transactions on Computing Education*, 14(3):18:1–18:??, November 2014. CODEN ???? ISSN 1946-6226.
- [CHH<sup>+</sup>11] Orpheus S. L. Crutchfield, Christopher D. Harrison, Guy Haas, Daniel D. Garcia, Sheila M. Humphreys, Colleen M. Lewis, and Peter Khooshabeh. Berkeley Foundation for Opportunities in Information Technology: a decade of broadening participation. *ACM Transactions on Computing Education*, 11(3):15:1–15:??, October 2011. CODEN ???? ISSN 1946-6226.
- [CHM13] Manuel Carro, Ángel Herranz, and Julio Mariño. A model-driven approach to teaching concurrency. *ACM Transactions on Computing Education*, 13(1):5:1–5:??, January 2013. CODEN ???? ISSN 1946-6226.
- [CHU<sup>+</sup>09] James H. Cross II, T. Dean Hendrix, David A. Umphress, Larry A. Barowski, Jhilmil Jain, and Lacey N. Montgomery. Robust generation of dynamic data structure visualizations with multiple interaction approaches. *ACM Transactions on Computing Education*, 9(2):13:1–13:??, June 2009. CODEN ???? ISSN 1946-6226.
- [CK09] Michael E. Caspersen and Michael Kolling. STREAM: A first programming process. *ACM Transactions on Computing Education*, 9(1):4:1–4:??, March 2009. CODEN ???? ISSN 1946-6226.
- [Coo10] Stephen Cooper. The design of Alice. *ACM Transactions on Computing Education*, 10(4):15:1–15:??, November 2010. CODEN ???? ISSN 1946-6226.
- [d’A10] Roberto d’Amore. A synthesis-oriented VHDL course. *ACM Transactions on Computing Education*, 10(2):6:1–6:??, June 2010. CODEN ???? ISSN 1946-6226.
- [DBBR11] Teresa Dahlberg, Tiffany Barnes, Kim Buch, and Audrey Rorer. The STARS alliance: Viable

**Choi:2015:CEK**

**Cross:2009:RGD**

**Clarke:2014:ITS**

**Caspersen:2009:SFP**

**Crutchfield:2011:BFO**

**Cooper:2010:DA**

**Carro:2013:MDA**

**Dahlberg:2011:SAV**

- strategies for broadening participation in computing. *ACM Transactions on Computing Education*, 11(3):18:1–18:??, October 2011. CODEN ???? ISSN 1946-6226.
- [DHH<sup>+</sup>15] Svetlana V. Drachova, Jason O. Hallstrom, Joseph E. Hollingsworth, Joan Krone, Rich Pak, and Murali Sitaraman. Teaching mathematical reasoning principles for software correctness and its assessment. *ACM Transactions on Computing Education*, 15(3):15:1–15:??, September 2015. CODEN ???? ISSN 1946-6226.
- [DLM11] Peggy Doerschuk, Jiangjiang Liu, and Judith Mann. IN-SPIRED high school computing academies. *ACM Transactions on Computing Education*, 11(2):7:1–7:??, July 2011. CODEN ???? ISSN 1946-6226.
- [EKS<sup>W</sup>11] Ron Eglash, Mukkai Krishnamoorthy, Jason Sanchez, and Andrew Woodbridge. Fractal simulations of African design in pre-college computing education. *ACM Transactions on Computing Education*, 11(3):17:1–17:??, October 2011. CODEN ???? ISSN 1946-6226.
- [ET12] Marisa Exter and Nichole Turnage. Exploring experienced professionals’ reflections on computing education. *ACM Transactions on Computing Education*, 12(3):12:1–12:??, July 2012. CODEN ???? ISSN 1946-6226.
- [FU10a] Sally Fincher and Ian Utting. Machines for thinking. *ACM Transactions on Computing Education*, 10(4):13:1–13:??, November 2010. CODEN ???? ISSN 1946-6226.
- [FU10b] Sally Fincher and Ian Utting. Preface to special issue on initial learning environments. *ACM Transactions on Computing Education*, 10(4):12:1–12:??, November 2010. CODEN ???? ISSN 1946-6226.
- [GEME14] Mark Guzdial, Barbara Ericson, Tom Mcklin, and Shelly Engelman. Georgia computes! An intervention in a US state, with formal and informal education in a policy context. *ACM Transactions on Computing Education*, 14(2):13:1–13:??, June 2014. CODEN ???? ISSN 1946-6226.
- [GES14] Judith Gal-Ezer and Chris Stephenson. A tale of two countries: Successes and challenges in K–12 computer science education in Israel and the United States. *ACM Transactions on Computing Education*, 14(2):8:1–8:??, June 2014. CODEN ???? ISSN 1946-6226.

**Drachova:2015:TMR**

**Fincher:2010:MT**

**Doerschuk:2011:IHS**

**Fincher:2010:PSI**

**Guzdial:2014:GCI**

**Eglash:2011:FSA**

**Gal-Ezer:2014:TTC**

**Exter:2012:EEP**

**Goldman:2010:SSC**

- [GGH<sup>+</sup>10] Ken Goldman, Paul Gross, Cinda Heeren, Geoffrey L. Herman, Lisa Kaczmarczyk, Michael C. Loui, and Craig Zilles. Setting the scope of concept inventories for introductory computing subjects. *ACM Transactions on Computing Education*, 10(2):5:1–5:??, June 2010. CODEN ???? ISSN 1946-6226.

**Gates:2011:CAH**

- [GHT<sup>+</sup>11] Ann Quiroz Gates, Sarah Hug, Heather Thiry, Richard Aló, Mohsen Beheshti, John Fernandez, Nestor Rodriguez, and Malek Adjouadi. The Computing Alliance of Hispanic-Serving Institutions: Supporting hispanics at critical transition points. *ACM Transactions on Computing Education*, 11(3):16:1–16:??, October 2011. CODEN ???? ISSN 1946-6226.

**Goode:2011:ECS**

- [GM11] Joanna Goode and Jane Margolis. Exploring computer science: a case study of school reform. *ACM Transactions on Computing Education*, 11(2):12:1–12:??, July 2011. CODEN ???? ISSN 1946-6226.

**Goldsmith:2014:FIC**

- [GM14] Judy Goldsmith and Nicholas Mattei. Fiction as an introduction to computer science research. *ACM Transactions on Computing Education*, 14(1):

4:1–4:??, March 2014. CODEN ???? ISSN 1946-6226.

**Grissom:2013:ISI**

- [Gri13] Scott Grissom. Introduction to special issue on alternatives to lecture in the computer science classroom. *ACM Transactions on Computing Education*, 13(3):9:1–9:??, August 2013. CODEN ???? ISSN 1946-6226.

**Hundhausen:2013:TAC**

- [HAA13] Christopher D. Hundhausen, Anukrati Agrawal, and Pawan Agarwal. Talking about code: Integrating pedagogical code reviews into early computing courses. *ACM Transactions on Computing Education*, 13(3):14:1–14:??, August 2013. CODEN ???? ISSN 1946-6226.

**Hubwieser:2015:MRM**

- [HAG15a] Peter Hubwieser, Michal Armoni, and Michail Giannakos. In memoriam: Roland Mittermeir (1950–2014). *ACM Transactions on Computing Education*, 15(2):6:1–6:??, May 2015. CODEN ???? ISSN 1946-6226.

**Hubwieser:2015:HIR**

- [HAG15b] Peter Hubwieser, Michal Armoni, and Michail N. Giannakos. How to implement rigorous computer science education in K–12 schools? Some answers and many questions. *ACM Transactions on Computing Education*, 15(2):5:1–5:??, May 2015. CODEN ???? ISSN 1946-6226.

- Hubwieser:2014:PVC**
- [HAGM14] Peter Hubwieser, Michal Armoni, Michail N. Giannakos, and Roland T. Mittermeir. Perspectives and visions of computer science education in primary and secondary (K–12) schools. *ACM Transactions on Computing Education*, 14(2):7:1–7:??, June 2014. CODEN ???? ISSN 1946-6226.
- Hassner:2015:TCV**
- [HB15] Tal Hassner and Itzik Bayaz. Teaching computer vision: Bringing research benchmarks to the classroom. *ACM Transactions on Computing Education*, 14(4):22:1–22:??, February 2015. CODEN ???? ISSN 1946-6226.
- Herman:2012:DWW**
- [HLKZ12] Geoffrey L. Herman, Michael C. Loui, Lisa Kaczmarczyk, and Craig Zilles. Describing the what and why of students’ difficulties in Boolean logic. *ACM Transactions on Computing Education*, 12(1):3:1–3:??, March 2012. CODEN ???? ISSN 1946-6226.
- Hu:2013:UPH**
- [HS13] Helen H. Hu and Tricia D. Shepherd. Using POGIL to help students learn to program. *ACM Transactions on Computing Education*, 13(3):13:1–13:??, August 2013. CODEN ???? ISSN 1946-6226.
- Hubwieser:2012:CSE**
- [Hub12] Peter Hubwieser. Computer science education in secondary schools — the introduction of a new compulsory subject. *ACM Transactions on Computing Education*, 12(4):16:1–16:??, November 2012. CODEN ???? ISSN 1946-6226.
- Hundhausen:2016:KTP**
- [Hun16] Christopher D. Hundhausen. Keeping TOCE on a positive trajectory. *ACM Transactions on Computing Education*, 16(1):1:1–1:??, February 2016. CODEN ???? ISSN 1946-6226.
- Ip:2012:FNI**
- [Ip12] Barry Ip. Fitting the needs of an industry: An examination of games design, development, and art courses in the UK. *ACM Transactions on Computing Education*, 12(2):6:1–6:??, April 2012. CODEN ???? ISSN 1946-6226.
- Isomottonen:2013:TPE**
- [IT13] Ville Isomöttönen and Ville Tirronen. Teaching programming by emphasizing self-direction: How did students react to the active role required of them? *ACM Transactions on Computing Education*, 13(2):6:1–6:??, June 2013. CODEN ???? ISSN 1946-6226.
- Kunkle:2016:IDT**
- [KA16] Wanda M. Kunkle and Robert B. Allen. The impact of different teaching approaches and languages on student learning of introductory programming concepts. *ACM Transactions on Computing Education*, 16(1):

- 3:1–3:??, February 2016. CODEN ???? ISSN 1946-6226.
- [Kar09] Ville Karavirta. Seamless merging of hypertext and algorithm animation. *ACM Transactions on Computing Education*, 9(2):10:1–10:??, June 2009. CODEN ???? ISSN 1946-6226.
- [KFME11] Karen A. Kim, Amy J. Fann, and Kimberly O. Misa-Escalante. Engaging women in computer science and engineering: Promising practices for promoting gender equity in undergraduate research experiences. *ACM Transactions on Computing Education*, 11(2):8:1–8:??, July 2011. CODEN ???? ISSN 1946-6226.
- [Kie09] Ulrich Kiesmüller. Diagnosing learners’ problem-solving strategies using learning environments with algorithmic problems in secondary education. *ACM Transactions on Computing Education*, 9(3):17:1–17:??, September 2009. CODEN ???? ISSN 1946-6226.
- [KLM15] Theodora Koulouri, Stanislaw Lauria, and Robert D. Macredie. Teaching introductory programming: a quantitative evaluation of different approaches. *ACM Transactions on Computing Education*, 14(4):26:1–26:??, February 2015. CODEN ???? ISSN 1946-6226.
- [KLS<sup>+</sup>14] Yasmin B. Kafai, Eunkyong Lee, Kristin Searle, Deborah Fields, Eliot Kaplan, and Debora Lui. A crafts-oriented approach to computing in high school: Introducing computational concepts, practices, and perspectives with electronic textiles. *ACM Transactions on Computing Education*, 14(1):1:1–1:??, March 2014. CODEN ???? ISSN 1946-6226.
- [KMB<sup>+</sup>15] Maria Knobelsdorf, Johannes Magenheimer, Torsten Brinda, Dieter Engbring, Ludger Humbert, Arno Pasternak, Ulrik Schroeder, Marco Thomas, and Jan Vahrenhold. Computer science education in North-Rhine Westphalia, Germany — a case study. *ACM Transactions on Computing Education*, 15(2):9:1–9:??, May 2015. CODEN ???? ISSN 1946-6226.
- [Köl10] Michael Kölling. The Greenfoot programming environment. *ACM Transactions on Computing Education*, 10(4):14:1–14:??, November 2010. CODEN ???? ISSN 1946-6226.
- [KS14] Evgeniy Khenner and Igor Semakin. School subject informatics (computer science) in Russia: Educational relevant areas. *ACM Transactions on Computing Education*, 14(2):14:1–14:??,

- June 2014. CODEN ???? ISSN 1946-6226. **Ludi:2011:URP**
- [KV15] Jaakko Kurhila and Arto Vihavainen. A purposeful MOOC to alleviate insufficient CS education in Finnish schools. *ACM Transactions on Computing Education*, 15(2):10:1–10:??, May 2015. CODEN ???? ISSN 1946-6226. **Kurhila:2015:PMA** [LR11]
- [Lar16] David L. Largent. Measuring and understanding team development by capturing self-assessed enthusiasm and skill levels. *ACM Transactions on Computing Education*, 16(2):6:1–6:??, March 2016. CODEN ???? ISSN 1946-6226. **Largent:2016:MUT** [LRJ14]
- [LBK11] Neomi Liberman, Catriel Beeri, and Yifat Ben-David Kolikant. Difficulties in learning inheritance and polymorphism. *ACM Transactions on Computing Education*, 11(1):4:1–4:??, February 2011. CODEN ???? ISSN 1946-6226. **Liberman:2011:DLI** [LRVW14]
- [LGP13] Cynthia Bailey Lee, Saturnino Garcia, and Leo Porter. Can peer instruction be effective in upper-division computer science courses? *ACM Transactions on Computing Education*, 13(3):12:1–12:??, August 2013. CODEN ???? ISSN 1946-6226. **Lee:2013:CPI** [LV11a]
- Stephanie Ludi and Tom Reichlmayr. The use of robotics to promote computing to pre-college students with visual impairments. *ACM Transactions on Computing Education*, 11(3):20:1–20:??, October 2011. CODEN ???? ISSN 1946-6226. **Luse:2014:USE**
- Andy Luse, Julie A. Rursch, and Doug Jacobson. Utilizing structural equation modeling and social cognitive career theory to identify factors in choice of IT as a major. *ACM Transactions on Computing Education*, 14(3):19:1–19:??, November 2014. CODEN ???? ISSN 1946-6226. **Lukowiak:2014:CEB**
- Marcin Lukowiak, Stanislaw Radziszowski, James Vallino, and Christopher Wood. Cybersecurity education: Bridging the gap between hardware and software domains. *ACM Transactions on Computing Education*, 14(1):2:1–2:??, March 2014. CODEN ???? ISSN 1946-6226. **Ladner:2011:ISI**
- Richard Ladner and Tammy VanDeGrift. Introduction to special issue (part 1): Broadening participation in computing education. *ACM Transactions on Computing Education*, 11(2):6:1–6:??, July 2011. CODEN ???? ISSN 1946-6226.

- [LV11b] **Ladner:2011:SIB** Richard Ladner and Tammy VanDeGrift. Special issue on broadening participation in computing education (part 2). *ACM Transactions on Computing Education*, 11(3):13:1–13:??, October 2011. CODEN ???? ISSN 1946-6226. [MC15]
- [MAK12] **McGill:2012:TRI** Tanya McGill, Jocelyn Armarego, and Tony Koppi. The teaching–research–industry–learning nexus in information and communications technology. *ACM Transactions on Computing Education*, 12(1):1:1–1:??, March 2012. CODEN ???? ISSN 1946-6226. [McG12a]
- [MBE<sup>+</sup>16] **McCartney:2016:WCS** Robert McCartney, Jonas Boustedt, Anna Eckerdal, Kate Sanders, Lynda Thomas, and Carol Zander. Why computing students learn on their own: Motivation for self-directed learning of computing. *ACM Transactions on Computing Education*, 16(1):2:1–2:??, February 2016. CODEN ???? ISSN 1946-6226. [McG12b]
- [MBSBA09] **Myller:2009:EET** Niko Myller, Roman Bednarik, Erkki Sutinen, and Mordechai Ben-Ari. Extending the engagement taxonomy: Software visualization and collaborative learning. *ACM Transactions on Computing Education*, 9(1):7:1–7:??, March 2009. CODEN ???? ISSN 1946-6226. [MFR13]
- [Miller:2015:ISI] Craig S. Miller and Randy Connolly. Introduction to the special issue on Web development. *ACM Transactions on Computing Education*, 15(1):1:1–1:??, March 2015. CODEN ???? ISSN 1946-6226. [McGill:2012:CPP]
- [McGill:2012:LPP] Monica M. McGill. The curriculum planning process for undergraduate game degree programs in the United Kingdom and United States. *ACM Transactions on Computing Education*, 12(2):7:1–7:??, April 2012. CODEN ???? ISSN 1946-6226. [McGill:2012:LPP]
- [Magana:2013:IDB] Monica M. McGill. Learning to program with personal robots: Influences on student motivation. *ACM Transactions on Computing Education*, 12(1):4:1–4:??, March 2012. CODEN ???? ISSN 1946-6226. [Magana:2013:IDB]
- [Mitra:2014:UUM] Alejandra J. Magana, Michael L. Falk, and Michael J. Reese, Jr. Introducing discipline-based computing in undergraduate engineering education. *ACM Transactions on Computing Education*, 13(4):16:1–16:??, November 2013. CODEN ???? ISSN 1946-6226. [Mitra:2014:UUM]
- [Mit14] Sandeep Mitra. Using UML modeling to facilitate three-tier architecture projects in

- software engineering courses. *ACM Transactions on Computing Education*, 14(3):17:1–17:??, November 2014. CODEN ???? ISSN 1946-6226.
- [MM12] Leonardo Mariani and Daniela Micucci. AuDeNTES: Automatic detection of teNtative plagiarism according to a rEference solution. *ACM Transactions on Computing Education*, 12(1):2:1–2:??, March 2012. CODEN ???? ISSN 1946-6226.
- [MPTV16] Linda Marshall, Vreda Pieterse, Lisa Thompson, and Dina M. Venter. Exploration of participation in student software engineering teams. *ACM Transactions on Computing Education*, 16(2):5:1–5:??, March 2016. CODEN ???? ISSN 1946-6226.
- [MRR<sup>+</sup>10] John Maloney, Mitchel Resnick, Natalie Rusk, Brian Silverman, and Evelyn Eastmond. The Scratch programming language and environment. *ACM Transactions on Computing Education*, 10(4):16:1–16:??, November 2010. CODEN ???? ISSN 1946-6226.
- [MS11] Craig S. Miller and Amber Settle. When practice doesn't make perfect: Effects of task goals on learning computing concepts. *ACM Transactions on Computing Education*, 11(4):22:1–22:??, November 2011. CODEN ???? ISSN 1946-6226.
- [MSH10] Orni Meerbaum-Salant and Orit Hazzan. An agile constructionist mentoring methodology for software projects in the high school. *ACM Transactions on Computing Education*, 9(4):21:1–21:??, January 2010. CODEN ???? ISSN 1946-6226.
- [NCLN13] Grace Ngai, Stephen C. F. Chan, Hong Va Leong, and Vincent T. Y. Ng. Designing i\*CATch: a multipurpose, education-friendly construction kit for physical and wearable computing. *ACM Transactions on Computing Education*, 13(2):7:1–7:??, June 2013. CODEN ???? ISSN 1946-6226.
- [NGK11] Uolevi Nikula, Orlena Gotel, and Jussi Kasurinen. A motivation guided holistic rehabilitation of the first programming course. *ACM Transactions on Computing Education*, 11(4):24:1–24:??, November 2011. CODEN ???? ISSN 1946-6226.
- [O'G12] Michael J. O'Grady. Practical problem-based learning in computing education. *ACM Transactions on Computing Education*, 12(3):10:1–10:??, July 2012. CODEN ???? ISSN 1946-6226.

**Mariani:2012:AAD**

**Meerbaum–Salant:2010:ACM**

**Ngai:2013:DIM**

**Marshall:2016:EPS**

**Nikula:2011:MGH**

**Maloney:2010:SPL**

**OGrady:2012:PPB**

**Miller:2011:WPD**

- [ORKH09] Rosalie Ocker, Mary Beth Rosson, Dana Kracaw, and S. Roxanne Hiltz. Training students to work effectively in partially distributed teams. *ACM Transactions on Computing Education*, 9(1):6:1–6:??, March 2009. CODEN ???? ISSN 1946-6226.
- [ORSH16] Claudia Ott, Anthony Robins, and Kerry Shephard. Translating principles of effective feedback for students into the CS1 context. *ACM Transactions on Computing Education*, 16(1):1:1–1:??, February 2016. CODEN ???? ISSN 1946-6226.
- [PCH09] J. H. Paterson, K. F. Cheng, and J. Haddow. PatternCoder: a programming support tool for learning binary class associations and design patterns. *ACM Transactions on Computing Education*, 9(3):16:1–16:??, September 2009. CODEN ???? ISSN 1946-6226.
- [PDF15] Thomas H. Park, Brian Dorn, and Andrea Forte. An analysis of HTML and CSS syntax errors in a Web development course. *ACM Transactions on Computing Education*, 15(1):4:1–4:??, March 2015. CODEN ???? ISSN 1946-6226.
- [PLB<sup>+</sup>12] G. Michael Poor, Laura M. Leventhal, Julie Barnes, Duke R. Hutchings, Paul Albee, and Laura Campbell. No user left behind: Including accessibility in student projects and the impact on CS students’ attitudes. *ACM Transactions on Computing Education*, 12(2):5:1–5:??, April 2012. CODEN ???? ISSN 1946-6226.
- [PM09] Arnold Pears and Lauri Malmi. Values and objectives in computing education research. *ACM Transactions on Computing Education*, 9(3):15:1–15:??, September 2009. CODEN ???? ISSN 1946-6226.
- [RBSS11] Penny Rheingans, Anne Brodsky, Jill Scheibler, and Anne Spence. The role of majority groups in diversity programs. *ACM Transactions on Computing Education*, 11(2):11:1–11:??, July 2011. CODEN ???? ISSN 1946-6226.
- [RC13] Karen Renaud and Quintin Cutts. Teaching human-centered security using nontraditional techniques. *ACM Transactions on Computing Education*, 13(3):11:1–11:??, August 2013. CODEN ???? ISSN 1946-6226.
- [RCS11] Mary Beth Rosson, John M. Carroll, and Hansa Sinha. Ori-

**Ocker:2009:TSW****Poor:2012:NUL****Ott:2016:TPE****Pears:2009:VOC****Paterson:2009:PPS****Rheingans:2011:RMG****Park:2015:AHC****Renaud:2013:THC****Rosson:2011:OUT**

- tation of undergraduates toward careers in the computer and information sciences: Gender, self-efficacy and social support. *ACM Transactions on Computing Education*, 11(3):14:1–14:??, October 2011. CODEN ???? ISSN 1946-6226.
- [Ric09] Debbie Richards. Designing project-based courses with a focus on group formation and assessment. *ACM Transactions on Computing Education*, 9(1):2:1–2:??, March 2009. CODEN ???? ISSN 1946-6226.
- [Rit09] Albert D. Ritzhaupt. Creating a game development course with limited resources: An evaluation study. *ACM Transactions on Computing Education*, 9(1):3:1–3:??, March 2009. CODEN ???? ISSN 1946-6226.
- [RJJ10] V. G. Renumol, Dharanipragada Janakiram, and S. Jayaprakash. Identification of cognitive processes of effective and ineffective students during computer programming. *ACM Transactions on Computing Education*, 10(3):10:1–10:??, August 2010. CODEN ???? ISSN 1946-6226.
- [RMNC10] Ingrid Russell, Zdravko Markov, Todd Neller, and Susan Coleman. MLeXAI: a project-based application-oriented model. *ACM Transactions on Computing Education*, 10(3):11:1–11:??, August 2010. CODEN ???? ISSN 1946-6226.
- [RRKP13] Ariel Rabkin, Charles Reiss, Randy Katz, and David Patterson. Using clouds for MapReduce measurement assignments. *ACM Transactions on Computing Education*, 13(1):2:1–2:??, January 2013. CODEN ???? ISSN 1946-6226.
- [RS14] Lennart Rolandsson and Inga-Britt Skogh. Programming in school: Look back to move forward. *ACM Transactions on Computing Education*, 14(2):12:1–12:??, June 2014. CODEN ???? ISSN 1946-6226.
- [RT15] Susan Reardon and Brendan Tangney. Smartphones, studio-based learning, and scaffolding: Helping novices learn to program. *ACM Transactions on Computing Education*, 14(4):23:1–23:??, February 2015. CODEN ???? ISSN 1946-6226.
- [RV09] Guido Rössling and Teena Velaramkalayil. A visualization-based computer science hyper-textbook prototype. *ACM Transactions on Computing Education*, 9(2):11:1–11:??, June 2009. CODEN ???? ISSN 1946-6226.

**Richards:2009:DPB**

**Rabkin:2013:UCM**

**Ritzhaupt:2009:CGD**

**Rolandsson:2014:PSL**

**Renumol:2010:ICP**

**Reardon:2015:SSB**

**Russell:2010:MPB**

**Rossling:2009:VBC**

- [RVAN15] **Raman:2015:CSC**  
Raghu Raman, Smrithi Venkatasubramanian, Krishnashree Achuthan, and Prema Nedungadi. Computer science (CS) education in Indian schools: Situation analysis using Darmstadt model. *ACM Transactions on Computing Education*, 15(2):7:1–7:??, May 2015. CODEN ???? ISSN 1946-6226.
- [RVI09] **Rossling:2009:EPA**  
Guido Rössling and J. Ángel Velázquez-Iturbide. Editorial: Program and algorithm visualization in education. *ACM Transactions on Computing Education*, 9(2):8:1–8:??, June 2009. CODEN ???? ISSN 1946-6226.
- [RWK<sup>+</sup>15] **Repenning:2015:SGD**  
Alexander Repenning, David C. Webb, Kyu Han Koh, Hilarie Nickerson, Susan B. Miller, Catharine Brand, Ian Her Many Horses, Ashok Basawapatna, Fred Gluck, Ryan Grover, Kris Gutierrez, and Nadia Repenning. Scalable game design: a strategy to bring systemic computer science education to schools through game design and simulation creation. *ACM Transactions on Computing Education*, 15(2):11:1–11:??, May 2015. CODEN ???? ISSN 1946-6226.
- [SCA<sup>+</sup>10] **Shaffer:2010:AVS**  
Clifforda Shaffer, Matthew L. Cooper, Alexander Joel D. Alon, Monika Akbar, Michael Stewart, Sean Ponce, and Stephen H. Edwards. Algorithm visualization: The state of the field. *ACM Transactions on Computing Education*, 10(3):9:1–9:??, August 2010. CODEN ???? ISSN 1946-6226.
- [SH10] **Shoufan:2010:CRP**  
Abdulhadi Shoufan and Sorin A. Huss. A course on reconfigurable processors. *ACM Transactions on Computing Education*, 10(2):7:1–7:??, June 2010. CODEN ???? ISSN 1946-6226.
- [She13] **Shesh:2013:TSU**  
Amit Shesh. Toward a singleton undergraduate computer graphics course in small and medium-sized colleges. *ACM Transactions on Computing Education*, 13(4):17:1–17:??, November 2013. CODEN ???? ISSN 1946-6226.
- [SKM13] **Sorva:2013:RGP**  
Juha Sorva, Ville Karavirta, and Lauri Malmi. A review of generic program visualization systems for introductory programming education. *ACM Transactions on Computing Education*, 13(4):15:1–15:??, November 2013. CODEN ???? ISSN 1946-6226.
- [Sor13] **Sorva:2013:NMI**  
Juha Sorva. Notional machines and introductory programming education. *ACM Transactions on Computing Education*, 13(2):8:1–8:??, June 2013. CODEN ???? ISSN 1946-6226.

- [SPR12] **Sondag:2012:FTU**  
 Tyler Sondag, Kian L. Pokorny, and Hridesh Rajan. Frances: a tool for understanding computer architecture and assembly language. *ACM Transactions on Computing Education*, 12(4):14:1–14:??, November 2012. CODEN ???? ISSN 1946-6226.
- [SS13] **Stefik:2013:EIP**  
 Andreas Stefik and Susanna Siebert. An empirical investigation into programming language syntax. *ACM Transactions on Computing Education*, 13(4):19:1–19:??, November 2013. CODEN ???? ISSN 1946-6226.
- [SSD09] **Schaeckeler:2009:COP**  
 Stefan Schaeckeler, Weijia Shang, and Ruth Davis. Compiler optimization pass visualization: The procedural abstraction case. *ACM Transactions on Computing Education*, 9(2):14:1–14:??, June 2009. CODEN ???? ISSN 1946-6226.
- [TABA12] **Taub:2012:CUM**  
 Rivka Taub, Michal Armoni, and Mordechai Ben-Ari. CS unplugged and middle-school students’ views, attitudes, and intentions regarding CS. *ACM Transactions on Computing Education*, 12(2):8:1–8:??, April 2012. CODEN ???? ISSN 1946-6226.
- [Ten14] **Tenenberg:2014:ARQ**  
 Josh Tenenberg. Asking research questions: Theoretical presup-
- positions. *ACM Transactions on Computing Education*, 14(3):16:1–16:??, November 2014. CODEN ???? ISSN 1946-6226.
- [TM09] **Tenenberg:2009:IAT**  
 Josh Tenenberg and Robert McCartney. Introducing the ACM Transactions on Computing Education. *ACM Transactions on Computing Education*, 9(1):1:1–1:??, March 2009. CODEN ???? ISSN 1946-6226.
- [TM10] **Tenenberg:2010:WDM**  
 Josh Tenenberg and Robert McCartney. Why discipline matters in computing education scholarship. *ACM Transactions on Computing Education*, 9(4):18:1–18:??, January 2010. CODEN ???? ISSN 1946-6226.
- [TM11a] **Tenenberg:2011:ECT**  
 Josh Tenenberg and Robert McCartney. Editorial: Computational tools for computing education. *ACM Transactions on Computing Education*, 11(4):21:1–21:??, November 2011. CODEN ???? ISSN 1946-6226.
- [TM11b] **Tenenberg:2011:EEP**  
 Josh Tenenberg and Robert McCartney. Editorial: Entry points for computing education research. *ACM Transactions on Computing Education*, 11(1):1:1–1:??, February 2011. CODEN ???? ISSN 1946-6226.
- [TM14] **Tenenberg:2014:ECE**  
 Josh Tenenberg and Robert McCartney. Editorial: Computing education in (K–12) schools

- from a cross-national perspective. *ACM Transactions on Computing Education*, 14(2):6:1–6:??, June 2014. CODEN ???? ISSN 1946-6226.
- [TM15] Josh Tenenberg and Robert McCartney. Looking backward to look forward: TOCE in transition. *ACM Transactions on Computing Education*, 15(3):12:1–12:??, September 2015. CODEN ???? ISSN 1946-6226.
- [TSK12] Bénédicte Talon, Mouldi Sagar, and Christophe Kolski. Developing competence in interactive systems: The GRASP tool for the design or redesign of pedagogical ICT devices. *ACM Transactions on Computing Education*, 12(3):9:1–9:??, July 2012. CODEN ???? ISSN 1946-6226.
- [UCK<sup>+</sup>10] Ian Utting, Stephen Cooper, Michael Kölling, John Maloney, and Mitchel Resnick. Alice, Greenfoot, and Scratch — a discussion. *ACM Transactions on Computing Education*, 10(4):17:1–17:??, November 2010. CODEN ???? ISSN 1946-6226.
- [UFVI09] Jaime Urquiza-Fuentes and J. Ángel Velázquez-Iturbide. A survey of successful evaluations of program visualization and algorithm animation systems. *ACM Transactions on Computing Education*, 9(2):9:1–9:??, June 2009. CODEN ???? ISSN 1946-6226.
- [VFF16] Rebecca Vivian, Katrina Falkner, Nickolas Falkner, and Hamid Tarmazdi. A method to analyze computer science students' teamwork in online collaborative learning environments. *ACM Transactions on Computing Education*, 16(2):7:1–7:??, March 2016. CODEN ???? ISSN 1946-6226.
- [VI13] J. Ángel Velázquez-Iturbide. An experimental method for the active learning of greedy algorithms. *ACM Transactions on Computing Education*, 13(4):18:1–18:??, November 2013. CODEN ???? ISSN 1946-6226.
- [Wan11] Alf Inge Wang. Extensive evaluation of using a game project in a software architecture course. *ACM Transactions on Computing Education*, 11(1):5:1–5:??, February 2011. CODEN ???? ISSN 1946-6226.
- [WDC15] Linda Werner, Jill Denner, and Shannon Campe. Children programming games: a strategy for measuring computational learning. *ACM Transactions on Computing Education*, 14(4):24:1–24:??, February 2015. CODEN ???? ISSN 1946-6226.

- [WK10] **Walker:2010:CSL**  
Henry M. Walker and Charles Kelemen. Computer science and the liberal arts: a philosophical examination. *ACM Transactions on Computing Education*, 10(1): 2:1–2:??, March 2010. CODEN ???? ISSN 1946-6226.
- [WSP<sup>+</sup>11] **Wolz:2011:CTE**  
Ursula Wolz, Meredith Stone, Kim Pearson, Sarah Monisha Pulimood, and Mary Switzer. Computational thinking and expository writing in the middle school. *ACM Transactions on Computing Education*, 11(2): 9:1–9:??, July 2011. CODEN ???? ISSN 1946-6226.
- [Xin15] **Xinogalos:2015:OOD**  
Stelios Xinogalos. Object-oriented design and programming: an investigation of novices' conceptions on objects and classes. *ACM Transactions on Computing Education*, 15(3):13:1–13:??, September 2015. CODEN ???? ISSN 1946-6226.
- [YMZ<sup>+</sup>14] **Yadav:2014:CTE**  
Aman Yadav, Chris Mayfield, Ninger Zhou, Susanne Hambrusch, and John T. Korb. Computational thinking in elementary and secondary teacher education. *ACM Transactions on Computing Education*, 14(1): 5:1–5:??, March 2014. CODEN ???? ISSN 1946-6226.
- [YR15] **Yuen:2015:QSS**  
Timothy T. Yuen and Kay A. Robbins. A qualitative study of students' computational thinking skills in a data-driven computing class. *ACM Transactions on Computing Education*, 14(4): 27:1–27:??, February 2015. CODEN ???? ISSN 1946-6226.
- [YVQ<sup>+</sup>10] **Yuan:2010:VTT**  
Xiaohong Yuan, Percy Vega, Yaseen Qadah, Ricky Archer, Huiming Yu, and Jinsheng Xu. Visualization tools for teaching computer security. *ACM Transactions on Computing Education*, 9(4):20:1–20:??, January 2010. CODEN ???? ISSN 1946-6226.
- [ZD15] **Zhang:2015:IEF**  
Yulei (Gavin) Zhang and Yan (Mandy) Dang. Investigating essential factors on students' perceived accomplishment and enjoyment and intention to learn in Web development. *ACM Transactions on Computing Education*, 15(1): 3:1–3:??, March 2015. CODEN ???? ISSN 1946-6226.
- [Zin15] **Zingaro:2015:EIG**  
Daniel Zingaro. Examining interest and grades in Computer Science 1: a study of pedagogy and achievement goals. *ACM Transactions on Computing Education*, 15(3):14:1–14:??, September 2015. CODEN ???? ISSN 1946-6226.
- [ZJWF11] **Zimmerman:2011:WLH**  
Thomas G. Zimmerman, David Johnson, Cynthia Wambsgans, and Antonio Fuentes. Why

Latino high school students select computer science as a major: Analysis of a success story. *ACM Transactions on Computing Education*, 11(2):10:1–10:??, July 2011. CODEN ???? ISSN 1946-6226.

**Ziwisky:2013:EEO**

- [ZPB13] Michael Ziwisky, Kyle Persohn, and Dennis Brylow. A down-to-earth educational operating system for up-in-the-cloud many-core architectures. *ACM Transactions on Computing Education*, 13(1):4:1–4:??, January 2013. CODEN ???? ISSN 1946-6226.